

FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
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)	
The Boeing Company, Application for Authority)	File No. SAT-LOA-20160622-00058
to Launch and Operate a Non-Geostationary Low)	
Earth Orbit Satellite System in the Fixed Satellite)	
Service)	
)	

OPPOSITION OF STRAIGHT PATH COMMUNICATIONS INC.

Straight Path Communications Inc. (“Straight Path”) submits this opposition to the above-referenced application (“Application”) by The Boeing Company (“Boeing”) seeking authority to launch and operate a non-geostationary satellite orbit (“NGSO”) fixed satellite service (“FSS”) system in the 37.5-42 GHz (space-to-Earth) band, and the 47.2-50.2 and 50.4-51.4 GHz (Earth-to-space) bands.^{1/} The Application is consistent with Boeing’s Petition for Rulemaking (“Petition”), which requested that the Commission allocate and authorize additional uplink spectrum for FSS in the 50.4-51.4 GHz and 51.4-52.4 GHz bands (the “50 GHz band”) to be paired with downlink spectrum in the 37.5-42.5 GHz bands.^{2/} Straight Path opposed the

^{1/} The Boeing Company, Application for Authority to Launch and Operate a Non-Geostationary Low Earth Orbit Satellite System in the Fixed Satellite Service, IBFS File No. SAT-LOA-20160622-00058 (filed June 22, 2016) (“Application”); *see also Satellite Policy Branch Information, Boeing Application Accepted for Filing in Part, IBFS File No. SAT-LOA-20160622-00058, Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 37.5-40.0 GHz, 40.0-42.0 GHz, 47.2-50.2 GHz, and 50.4-51.4 GHz Bands*, Public Notice, DA 16-1244 (IB Nov. 1, 2016) (“Public Notice”). The Application seeks authorization for use of additional spectrum, but the Public Notice states that the Commission will only consider Boeing’s request for use of the 37.5-42 GHz, 47.2-50.2 and 50.4-51.4 GHz band now.

^{2/} Petition for Rulemaking of The Boeing Company, RM-11773 (filed Sept. 16, 2016) (“Petition”); *see also Petition for Rulemaking Filed*, Public Notice, Report No. 3051 (CGB Sept. 16, 2016).

Petition^{3/} and, for the same reasons, opposes the Application and urges the Commission to deny it.

Straight Path is one of the largest holders of spectrum in the 38.6-40 GHz (“39 GHz”) band and has been an active participant in the *Spectrum Frontiers Proceeding*.^{4/} Straight Path is also an industry leader in developing mobile broadband millimeter wave technology.^{5/} In the *Report and Order*, the Commission created new Upper Microwave Flexible Use Service (“UMFUS”) licenses authorizing mobile operations in the 39 GHz band using geographic area licensing.^{6/} Straight Path is one of the incumbent licensees that will be issued UMFUS authorizations as a result of the *Report and Order*. Boeing now seeks authority to operate its proposed NGSO satellite system in the 39 GHz band (and in the 37.5-38.6 GHz (“37 GHz”) band), and it further requests that the Commission allow the system to operate at higher power flux density (“PFD”) levels than those currently permitted under the Commission’s rules.^{7/} Accordingly, the Application would have a direct impact on Straight Path’s use of the 39 GHz band as permitted by the *Report and Order*.

^{3/} Opposition to Petition for Rulemaking, Straight Path Communications Inc., RM-11773 (filed Oct. 17, 2016).

^{4/} See *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, FCC 16-89, ¶¶ 88-93 (July 14, 2016) (the “*Spectrum Frontiers Proceeding*,” (subparts referred to herein as the “*Report and Order*” and the “*Further Notice*,” respectively)).

^{5/} See, e.g., Letter from Davidi Jonas, CEO and President, Straight Path Communications, Inc. to Marlene H. Dortch, Secretary, FCC, in GN Docket No. 14-177, Attachment at 2 (filed June 16, 2016) (noting that Straight Path is investing in 39 GHz point-to-multi-point technology and developing a 5G transceiver prototype for 39 GHz).

^{6/} *Report and Order* at ¶¶ 88-93.

^{7/} See Application at 17-21.

I. DISCUSSION

The Commission should deny the Petition for three reasons. *First*, the Application's contemplated satellite operations in the 39 GHz band have been superseded by the *Report and Order*. *Second*, Boeing's proposed use of the 39 GHz band would cause harmful interference to Straight Path's operations in the band, even at the Commission's current PFD limits. *Third*, it would be premature for the Commission to make a determination concerning use of spectrum bands that it has identified in the *Further Notice* as candidates for 5G mobile broadband use.

A. The Application has Been Superseded by the *Report and Order*.

Boeing's proposed use of the 37.5-42 GHz band contradicts recent Commission action by obstructing the deployment of Fifth Generation ("5G") mobile broadband services in the 37 GHz and 39 GHz bands as permitted by the *Report and Order*. The *Report and Order* created UMFUS licenses in the 37.5-40 GHz band, allowing only limited use of the band for satellite operations.^{8/} The Commission has already significantly accommodated the satellite industry by authorizing protected FSS operations in the band in certain circumstances. Specifically, the Commission will authorize non-federal satellite earth stations in the 39 GHz band on a first-come, first-served basis, subject to conditions restricting the number and size of satellite protection zones.^{9/} Thus, the Commission made clear that the primary use of the 37.5-40 GHz band will be for flexible terrestrial operations. Boeing's proposed operations are in conflict with that policy determination.

The Application is also inconsistent with the Commission's soft-segmentation plan and rules for terrestrial/satellite sharing in the 37.5-42 GHz band as confirmed by the *Report and*

^{8/} *Report and Order* at ¶¶ 93, 105 n.272.

^{9/} *Id.* at ¶ 93.

Order.^{10/} Under that framework, terrestrial services have primary access to the 37-40 GHz band, with satellite services having primary access to the 40-42 GHz band.^{11/} Grant of Boeing's request for authority to operate at the increased PFD limits in the 37.5-40 GHz band would be an abrupt deviation from the Commission's longstanding approach to satellite and terrestrial sharing in the 37.5-40 GHz band.

B. Boeing's Proposed Satellite Operations Would Cause Unacceptable Levels of Interference to UMFUS Services in the 39 GHz Band.

Boeing's proposed FSS operations are incompatible with Straight Path's use of the 39 GHz band. In particular, Boeing's request for a waiver of the current PFD limits in the 37.5-40 GHz band would interfere with terrestrial use of the 39 GHz band under the UMFUS framework. Boeing claims that its NGSO system could operate at increased PFD levels without causing harmful interference to UMFUS operations in the 37.5-40 GHz band.^{12/} But as Straight Path has demonstrated, there are practical and technological limitations that make it exceedingly difficult

^{10/} 47 C.F.R. § 25.136 (Earth Stations in the 27.5-28.35 GHz and 37.5-40 GHz bands); Report and Order at ¶¶ 88-93; *see also Allocation and Designation of Spectrum for Fixed Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations*, Second Report and Order, 18 FCC Rcd. 25428, ¶¶ 1-3, 23-24 (2003) ("V-Band Second Report and Order") (adopting satellite PFD limits consistent with the Commission's soft segmentation approach).

^{11/} *See V-Band Second Report and Order* at ¶¶ 1-3, 12-14 (codifying soft-segmentation plan consistent with a global sharing plan adopted at the 2000 World Radio Conference, "which imposed a more rigorous satellite PFD limit from 37.0-40.0 GHz favoring terrestrial uses, and a less rigorous PFD limit from 40.0-42.0 GHz favoring satellite uses."); *see also Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations*, Third Further Notice of Proposed Rulemaking, 25 FCC Rcd. 15663, ¶ 7 (2010) ("In making its decision [in the V-Band Second Report and Order], the Commission sought to bring technical and regulatory certainty to systems currently operating in the 37.0-40.0 GHz portion of the spectrum and to codify the concept of soft segmentation, thus allowing ubiquitous deployment of FS and FSS operations in the V-band.").

^{12/} *See Application* at 18.

for both mobile and downlink satellite services to operate in the 39 GHz band, even at the Commission's current PFD limits.^{13/} The higher PFD limits requested by Boeing would unacceptably degrade terrestrial services in the 37-40 GHz band and undermine the entire purpose of the *Spectrum Frontiers* proceeding.^{14/}

C. The Application is Premature Pending Commission Action on the *Further Notice*.

Finally, the *Further Notice* proposes to authorize fixed and mobile use in additional spectrum bands, including the 47.2-50.2 GHz ("47 GHz"), and 50.4-52.4 GHz ("50 GHz") bands targeted by Boeing's Application.^{15/} It would therefore be inappropriate for the Commission to grant the Application before acting on the *Further Notice*. And although the 40-42 GHz band was not identified by the Commission in the *Further Notice*, interested parties also asked the Commission to re-examine the use of that spectrum for potential terrestrial operations.^{16/} Because the potential use of all of these bands will remain in flux until the Commission proceeds with the *Further Notice*, the Commission should take no action that would prejudice its options in that proceeding. Instead, the Commission should reject the Application as premature until the matters raised in the *Further Notice* are finally resolved.

^{13/} See Comments of Straight Path Communications Inc., GN Docket No. 14-177, *et al.*, at 30-38 (filed Jan. 27, 2016) ("Straight Path Comments").

^{14/} See, e.g., Reply Comments of Straight Path Communications, GN Docket No. 14-177, *et al.*, at 20 (filed Oct. 31, 2016) ("Straight Path Reply Comments"); Letter from Davidi Jonas, CEO and President, Straight Path Communications Inc. to Marlene H. Dortch, Secretary, FCC, in GN Docket No. 14-177, *et al.* (filed Oct. 17, 2016).

^{15/} *Further Notice* at ¶ 373; see also Application at 1.

^{16/} See, e.g., Comments of CTIA, GN Docket No. 14-177, *et al.*, at 12-14 (filed Sept. 30, 2016) ("[T]he Commission should consider reallocating the entire 40-42.5 GHz band for mobile uses rather than focusing solely on the 42-42.5 GHz band."); Comments of Huawei Technologies, Inc. (USA) and Huawei Technologies Co. Ltd., GN Docket No. 14-177, *et al.*, at 6 (filed Sept. 30, 2016) (recommending that "the Commission extend the applicable frequency bands from 42-42.5 GHz to 40-42.5 GHz band for UMFUS" because it would allow for a contiguous 5.5 GHz block of spectrum from 37-42.5 GHz).

More broadly, the Application and the similar request submitted by OneWeb^{17/} highlight why the application process is precisely the wrong vehicle to determine whether spectrum should be dedicated for satellite broadband operations. There have now been multiple competing applications submitted in response to the OneWeb application, and additional applications will likely be submitted in response to Boeing's Application.^{18/} Yet as Straight Path has noted, use of spectrum to deliver broadband via satellite is inherently inefficient.^{19/} Before the Commission acts on any of these applications, it should address the fundamental questions of whether dedication of spectrum for satellite broadband is in the public interest and, if so, which spectrum bands should be dedicated for that purpose. Action on the OneWeb and Boeing requests prior to answering those questions will not represent considered spectrum management.

^{17/} See *Satellite Policy Branch Information, OneWeb Petition Accepted for Filing, IBFS File No. SAT-LOI-20160428-00041, Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 10.7-12.7 GHz, 14.0.0-14.5 GHz, 17.8-18.6 GHz, 18.8-19.3 GHz, 27.5-28.35 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz Bands*, Public Notice, DA 16-804 (IB July 15, 2016).

^{18/} See Applications of Space Exploration Holdings, IBFS File No. SAT-LOA-20161115-00118 (filed Nov. 15, 2016); O3b Limited, IBFS File No. SAT-AMD-20161115-00116 (filed Nov. 15, 2016); The Boeing Company, IBFS File No. SAT-LOA-20161115-00109 (filed Nov. 15, 2016); ViaSat, Inc., IBFS File No. SAT-LOI-20161115-00120 (filed Nov. 15, 2016); Karousel LLC, IBFS File No. SAT-LOA-20161115-00113 (filed Nov. 15, 2016); Audacy Corporation, IBFS File No. SAT-LOA-20161115-00117 (filed Nov. 15, 2016); Theia Holdings A, Inc., IBFS File No. SAT-LOA-20161115-00121 (filed Nov. 15, 2016); Telesat Canada, IBFS File No. SAT-LOI-20161115-00108 (filed Nov. 15, 2016); Space Norway AS, IBFS File No. SAT-LOI-20161115-00111 (filed Nov. 15, 2016); LeoSat MA, Inc., IBFS File No. SAT-LOI-20161115-00112 (filed Nov. 15, 2016); Kepler Communications Inc., IBFS File No. SAT-LOI-20161115-00114 (filed Nov. 15, 2016).

^{19/} See Straight Path Comments at 27-30; Straight Path Reply Comments at 4-7.

III. CONCLUSION

The Application, like the companion Petition for Rulemaking, seeks to upend the work the Commission has undertaken to make spectrum available for mobile terrestrial operations in the millimeter wave bands. The Application is inconsistent with the actions the Commission has already taken in the *Spectrum Frontiers Proceeding*, and actions that it might take in further phases of that proceeding. Accordingly, the Commission should promptly deny the Application.

Respectfully submitted,

/s/ Davidi Jonas

Davidi Jonas, President and CEO
Jerry Pi, Chief Technology Officer

STRAIGHT PATH COMMUNICATIONS INC.
600 Sylvan Ave. Suite 402
Englewood Cliffs, NJ 07632

December 1, 2016

CERTIFICATE OF SERVICE

I, Gregory B. Simon, hereby certify that on December 1, 2016 a copy of the foregoing Opposition of Straight Path Communications Inc. was served by first-class mail, postage paid, on each of the following:

Audrey L. Allison
Senior Director, Frequency Management Services
THE BOEING COMPANY
929 Long Bridge Drive
Arlington, VA 22202

Bruce A. Olcott
Preston N. Thomas
JONES DAY
51 Louisiana Ave. NW
Washington, D.C. 20001

/s/ Gregory B. Simon

MINTZ, LEVIN, COHN, FERRIS,
GLOVSKY AND POPEO, P.C.
701 Pennsylvania Ave., NW, Suite 900
Washington, D.C. 20004